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CONTROL OF INSECT PESTS OF STORED GRAIN PRODUCTS IN MILLS AND WAREHOUSES

The annual loss in the United States from insects attacking stored grains and grain products is enormous, even startling, just how much nobody knows. It has been estimated by authorities at $200,000,000. Put in different terms, the loss caused by these insects annually is sufficient to buy all the farm property including improvements in the Pennsylvania counties of Chester and Lancaster, and there would be $10,000,000 left over.

Much of this loss can be avoided. It is largely the indifference and carelessness of the various people, who handle these grains and grain products, that make the loss possible. If every person handling grain and grain products would thoroughly clean all premises where the grain is stored, there would be but little loss, especially if sanitary methods were constantly employed.

In mills the loss may be prevented by fumigation, or by using a heat treatment. All insects are killed when exposed to temperatures of 125 to 130° F. for a period of a few hours. To get penetration of this temperature to all parts of the mill it is necessary to continue the heat for a period of ten to twelve hours. Fumigation may be done with carbon bisulphide, or hydrocyanic acid. The fumigation should be made twice a year in June and in September. The fumigation in June is advisable since at this time there is less grain about the mill than in any other season of the year, and the mill will be clean for the reception of the new wheat crop.

The cost of piping the mill for the raising of the temperature to the point of killing insects is not always excessive and when once in the mill it is ready for use at any time. The use of heat is advisable since it is not only effective but there is no danger of loss of human life in making this treatment.

Elevator bins holding grain may be fumigated with carbon bisulphide. Use three pounds (pints) to one hundred bushels of grain. When treating shallow bins the carbon bisulphide may be sprinkled on the surface of the grain. When fumigating deep bins, it is advisable to insert part of the material four to six feet down in the bin. Use a piece of pipe and when driving the pipe down in the grain have a sharpened stick in the pipe, which is withdrawn leaving an empty pipe for pouring through.

CARBON BISULPHIDE FUMES ARE VERY EXPLOSIVE so all lights and fires must be kept from the building during fumigation. Fumigation with this material is NOT approved by insurance underwriters.

In storehouses for grain or grain products where it is not practical to treat the building with heat, and there is danger from the use of carbon bisulphide, hydrocyanic acid may be employed for the control of insects. This is an extremely poisonous gas to all forms of animal life, including higher animals and man, and should not be used except by persons familiar with its deadly nature and the proper methods of handling it. The United States Dept. of Agriculture, Washington, D. C.

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sends out a bulletin on the subject of fumigation of mills and warehouses with hydrocyanic acid, and any person thinking of using this method should first of all secure a copy of this bulletin.

In mills equipped with grain driers the infested grain may be very successfully treated by running it through the drier. Clean an empty bin quite thoroughly and then run the infested grain through the drier into the clean bin. The speed of the drier should be regulated just fast enough to enable the infested material to be heated through to a temperature of 125 to 130°F.

Much can be done in preventing loss by insects by the proper construction of the warehouse or mill. They should be built so that they can be easily cleaned. There should be no places where dust and waste products can collect thus providing ideal locations for the breeding of the mill pests. All materials should be piled on supports a few inches above the level of the floor so that the floor may be kept clean. Care should be taken to see that no lots of material remain around the storehouse or mill for any great length of time. New material coming into the storehouse or mill should be carefully watched for insect pests. Infested material should be refused, and returned to the firm making the shipment. Should infested material get by these precautions place it in a small room for sterilization, maintaining a temperature of 130°F. for 10 to 12 hours. A temperature of 130°F. will not injure the germinating qualities of seed, nor the milling qualities of grain used for flour. Small quantities of material can be sterilized in the oven at home by placing it in shallow pans. The material must not be over 1½ inches deep, and should be stirred occasionally.